APPENDIX B

SEPA Checklist for Proposed Green Lake Alum Treatment

SEPA CHECKLIST

Proposed Green Lake Alum Treatment

Prepared for

Seattle Parks and Recreation

October 2003

SEPA CHECKLIST

Proposed Green Lake Alum Treatment

Prepared for

Seattle Parks and Recreation
800 Maynard Avenue South
Seattle, Washington 98134-1336

Prepared by

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October 24, 2003

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Environmental Checklist

A. Background

1. Name of proposed project if applicable:

Green Lake Alum Treatment.

2. Name of applicant:

City of Seattle, Parks and Recreation.

3. Address and phone number of applicant and contact person:

C/O Kevin B. Stoops – (206) 684-7053
Seattle Parks and Recreation
800 Maynard Avenue South – 3rd Floor
Seattle, WA 98134

4. Date checklist prepared:

September 2, 2003.

5. Agency requesting checklist:

Washington Department of Ecology (Ecology).

6. Proposed timing or schedule (including phasing, if applicable):

February/March 2004.

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

No.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

1) Integrated Phosphorus Management Plan, prepared for the City of Seattle, Seattle Parks and Recreation, prepared by Herrera Environmental Consultants (Herrera 2003a).

2) Green Lake Alum Treatment Study, prepared for the City of Seattle, Seattle Parks and Recreation, by Herrera Environmental Consultants (Herrera 2003b).

3) Green Lake Phase IIIC Restoration Project, Vol 1. – Project Completion Report prepared by KCM (KCM 1995).

4) Green Lake Water Quality Improvement Project, Final Environmental Impact Statement (URS 1990).

5) Green Lake Restoration Diagnostic Feasibility Study (URS 1983).

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

No.

10. List any government approvals or permits that will be needed for your proposal, if known.

Aquatic Nuisance Plant and Algae Control, National Pollutant Discharge Elimination System (NPDES) Waste Discharge General Permit, issued by Ecology (Permit No. WAG-994000).

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

The project involves treating Green Lake with alum (aluminum sulfate) and sodium aluminate (buffering agent) to reduce phosphorus concentrations and concomitant toxic algal blooms.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should

submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Green Lake is located in Section 5, Township 25 North, Range 4 East. The alum treatment would cover the entire water surface of Green Lake (259 acres). Figure 1 presents a vicinity map and drainage basin map, and Figure 2 presents lake depth contours and shoreline features.

B. Environmental Elements

1. Earth

a. General description of the site (check one):

____ **Flat**
____ **Rolling**
____ **Hilly**
____ **steep slopes**
____ **Mountainous**
____ **other:** Lake

b. What is the steepest slope on the site (approximate percent slope)?

Not applicable (N/A)

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

N/A.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

Fill soils exist at the south end of the lake and at the community center. The small craft center at the south end of the lake was damaged in the recent "Nisqually" earthquake (Seattle 2001).

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

N/A

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

No.

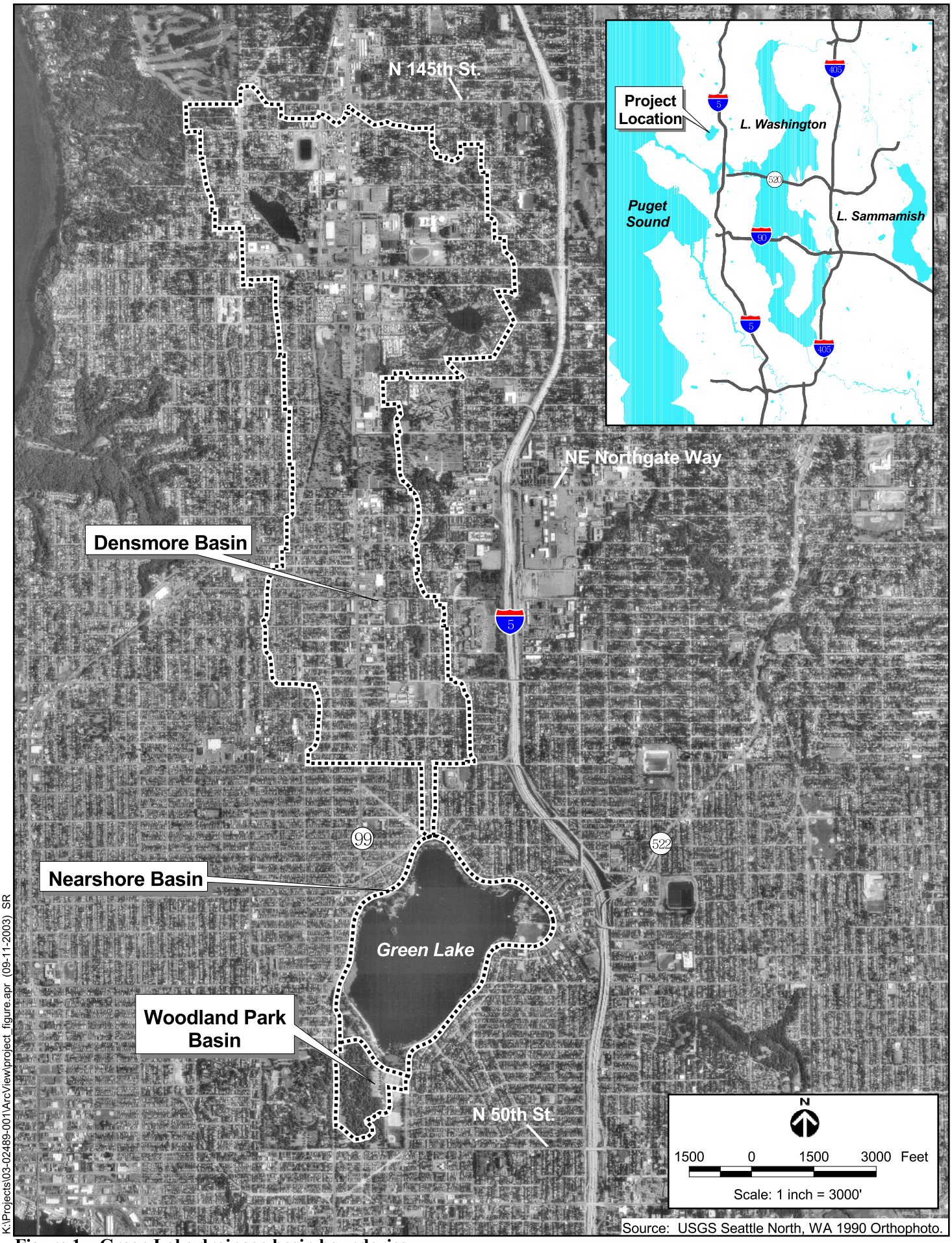

Figure 1. Green Lake drainage basin boundaries.

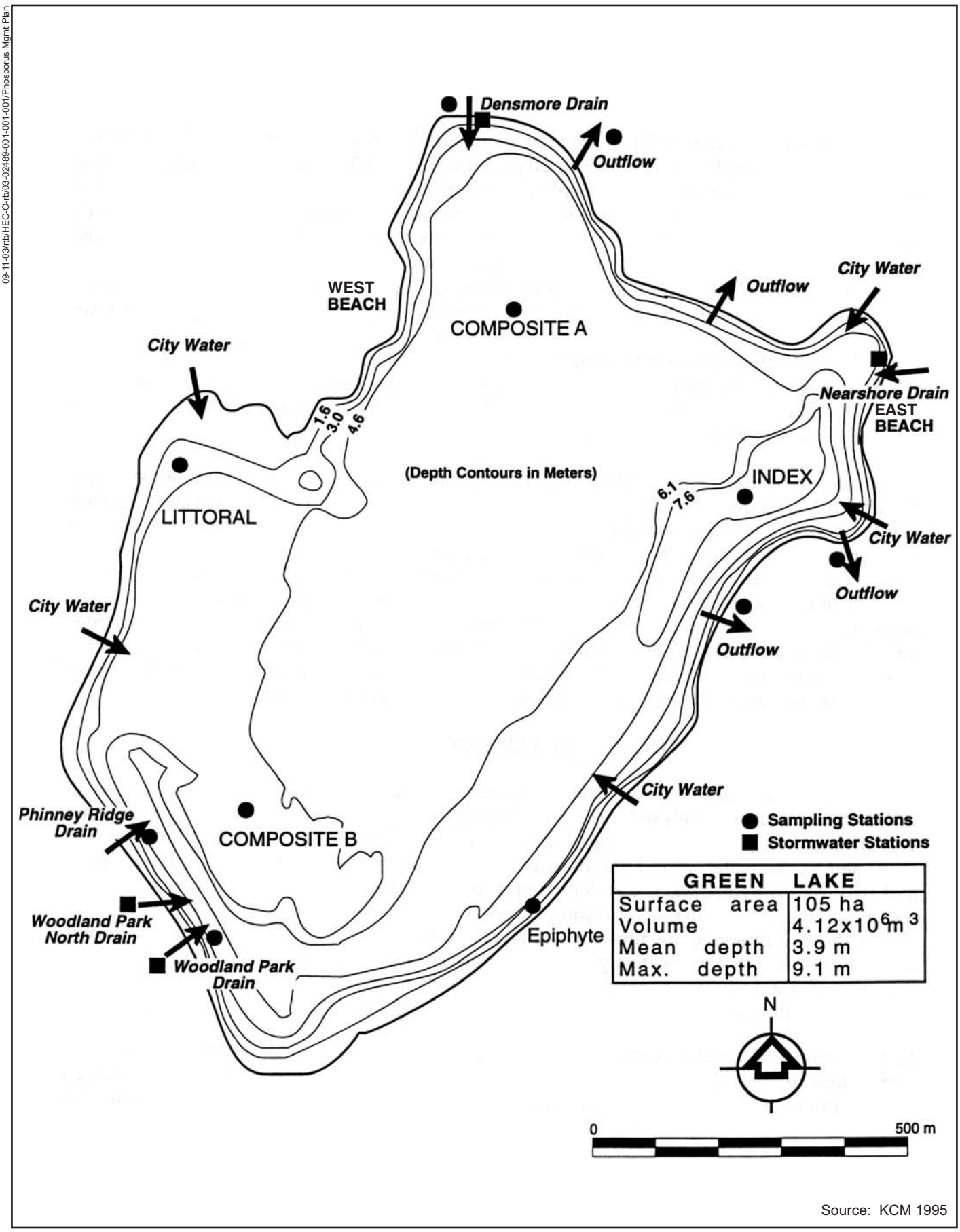

Figure 2. Locations of historical sampling stations in Green Lake.

g. About what percentage of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

None.

h. Proposed measures to reduce or control erosion, or other impacts on the earth, if any:

None.

2. Air

a. What types of emissions to the air would result from the proposal (for example, dust, automobile exhaust, odors, industrial wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.

Emissions from barge engine used during application, and from boat engine used for water quality sampling during and after alum application.

b. Are there any offsite sources of emissions or odor that may affect your proposal? If so, generally describe.

No.

c. Proposed measures to reduce or control emissions or other impacts on air, if any:

N/A.

3. Water

a. Surface water:

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, or wetlands)? If yes, describe and provide names. If appropriate, name the stream or river it flows into.

Yes, Green Lake. Green Lake is fed by subsurface springs, precipitation, and stormwater. Periodically, during maintenance of the Roosevelt reservoir facility, the City of Seattle discharges drinking water into the lake. For the last calendar year that records are available (1997), 1.9 mgd was piped to Green Lake during October and November. Water exits Green Lake via screened pipes into the King County storm drain which then discharges to Lake Union.

2) Will the project require any work over, in, or adjacent to (within 200 feet of) the described waters? If yes, please describe and attach available plans.

Yes. A moving barge would be used to apply the alum and sodium aluminate by either surface applications or subsurface injection.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

N/A.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

N/A.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Yes, the site is Green Lake.

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

None.

b. Ground water:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example, domestic sewage; industrial waste, containing the following chemicals . . .; agricultural waste; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including stormwater) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

N/A

2) Could waste materials enter ground or surface waters? If so, generally describe.

N/A

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

Monitoring would be conducted to reduce the potential for surface water impacts during the alum treatment. Samples would be collected and analyzed for numerous parameters to ensure that the quality of the lake is maintained throughout this treatment. Hourly pH and alkalinity measurements would be taken during the application. Twice daily monitoring would involve sampling for alkalinity, aluminum (dissolved and total recoverable), temperature, dissolved oxygen, pH, Secchi depth, and conductivity. Monitoring for short-term impacts would involve sampling for the above parameters as well as sulfate, total phosphorus, soluble reactive phosphorus, nitrite-nitrate nitrogen, ammonia, fecal coliform, and chlorophyll *a*. Sampling locations and methods are described in detail in the Water Quality Monitoring Plan included as Appendix C to the Integrated Phosphorus Monitoring Plan (Herrera 2003a).

4. Plants

a. Check types of vegetation found on the site:

- [X] **deciduous tree:**
  - [X] **Alder**
  - [X] **Maple**
  - [ ] **Aspen**
  - [ ] **others:** _____
- [X] **evergreen tree:**
  - [X] **Fir**
  - [X] **Cedar**
  - [ ] **Pine**
  - [ ] **others:** _____
- [X] **Shrubs**
- [X] **Grass**
- [ ] **Pasture**
- [ ] **crop or grain**
- [X] **wet soil plants:**
  - [X] **Cattail**
  - [ ] **Buttercup**
  - [X] **Bulrush**
  - [ ] **skunk cabbage**
  - [ ] **others:** _____

X **water plants:**
- X **water lily**
- ___ **Eelgrass**
- X **Milfoil**
- ___ **others:** _____

___ **other types of vegetation:** _____

b. What kind and amount of vegetation will be removed or altered?

None.

c. List threatened or endangered species known to be on or near the site.

None.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

N/A

5. Animals

a. List the names of any birds and animals that have been observed on or near the site or are known to be on or near the site:

Birds: Hawk, heron, eagle, songbird, waterfowl.

Mammals: Coyote, raccoons, possums, bats, rodents.

Fish: Bass, trout (rainbow, brown), common carp, grass carp, tiger musky, brown bullhead, yellow perch, pumpkinseed, sculpin.

b. List any threatened or endangered species known to be on or near the site.

Bald eagle (WDFW 2003).

c. Is the site part of a migration route? If so, explain.

Yes, waterfowl use the lake year-round.

d. Proposed measures to preserve or enhance wildlife, if any:

The lake will be monitored for pH and alkalinity on an hourly basis during the alum treatment to avoid killing fish. Should pH drop below 6, the application of alum will be stopped. The lake will be routinely inspected for the presence of dead fish and the Washington Department of Wildlife will be notified immediately if any dead fish are

observed. It is possible that some benthic feeding fish such as common carp will be killed during the treatment, but long-term impacts on fish populations are not anticipated.

6. Energy and Natural Resources

a. What kinds of energy (for example, electricity, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Oil and gas are needed for the boat and barge operation during alum application and water quality sampling.

b. Will your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

N/A.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

None.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals or risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

Yes. Both the proposed chemicals, sodium aluminate (caustic) and the alum (moderately acidic), could pose a hazard to aquatic wildlife. However, both chemicals will be applied simultaneously to balance the pH of the lake. The purpose of the alum treatment is to protect public health by eliminating the occurrence of late-summer blue-green bacteria blooms.

1) Describe special emergency services that might be required.

Contractor would prepare an accidental spill response plan that would be kept on the site during the application of the respective chemicals.

2) Proposed measures to reduce or control environmental health hazards, if any:

The spill response plan would outline specific measures needed to control and contain an accidental spill.

b. Noise

1) What types of noise existing in the area may affect your project (for example, traffic, equipment operation, other)?

None.

2) What types and levels of noise will be created by or associated with the project on a short-term or long-term basis (for example, traffic, construction, operation, other)? Indicate what hours noise will come from the site.

Temporary barge and sampling boat related engine noise.

3) Proposed measures to reduce or control noise impacts, if any:

None.

8. Land and Shoreline Use

a. What is the current use of the site and adjacent properties?

Park and recreation. There are residential and commercial properties in the area around Green Lake.

b. Has the site been used for agriculture? If so, describe.

No.

c. Describe any structures on the site.

Small craft floats and fishing piers and swimming floats.

d. Will any structures be demolished? If so, what?

No.

e. What is the current zoning classification of the site?

Area surrounding the lake is zoned Single Family (SF) 5000; SF 7200; Residential, Multifamily, Lowrise (L-1, L-2, L-3); Neighborhood Commercial (NC); Residential, Multifamily, Lowrise Duplex/Triplex (LDT); and Residential-Commercial (RC).

f. What is the current comprehensive plan designation of the site?

Parks and recreation.

g. If applicable, what is the current shoreline master program designation of the site?

The lake is designated conservancy management (CM).

h. Has any part of the site been classified as an environmentally sensitive area? If so, specify.

No.

i. Approximately how many people will reside or work in the completed project?

None.

j. Approximately how many people will the completed project displace?

None.

k. Proposed measures to avoid or reduce displacement impacts, if any:

N/A.

l. Proposed measures to ensure that the proposal is compatible with existing and projected land uses and plans, if any:

The intended water quality improvements are compatible with existing land uses and are intended to protect beneficial areas of the lake.

9. Housing

a. Approximately how many units will be provided, if any? Indicate whether high, middle, or low-income housing.

N/A.

b. Approximately how many units will be eliminated, if any? Indicate whether high, middle, or low-income housing.

N/A.

c. Proposed measures to reduce or control housing impacts, if any:

N/A.

10. Aesthetics

a. What is the tallest height of any proposed structure, not including antennas; what is the principal exterior building material proposed?

N/A.

b. What views in the immediate vicinity will be altered or obstructed?

N/A.

c. Proposed measures to reduce or control aesthetic impacts, if any:

The project should improve aesthetics at Green Lake by reducing potential for unsightly and odiferous blue-green bacteria blooms.

11. Light and Glare

a. What type of light or glare will the proposal produce? What time of day will it mainly occur?

N/A.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

No.

c. What existing offsite sources of light or glare may affect your proposal?

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

Water-borne recreation activities such as swimming and boating as well as fishing and wildlife viewing.

b. Will the proposed project displace any existing recreational uses? If so, describe.

No.

c. Proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant, if any:

To have minimal affect on recreational use of the lake, the alum application would occur in the winter. The project is intended to restore beneficial uses of the lake.

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

No.

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

None.

c. Proposed measures to reduce or control impacts, if any:

N/A

14. Transportation

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any:

Public access area is off of Highway 99 (Aurora Avenue North) and surrounding side streets.

b. Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

Yes, there are numerous bus stops around the perimeter of the lake.

c. How many parking spaces will the completed project have? How many will the project eliminate?

N/A.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).

No.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

No.

f. How many vehicular trips per day will be generated by the completed project? If known, indicate when peak volumes will occur.

It is anticipated that there won't be significant increases in traffic as a result of this project.

g. Proposed measures to reduce or control transportation impacts, if any:

None.

15. Public Services

a. Will the project result in an increased need for public services (for example, fire protection, police protection, health care, schools, other)? If so, generally describe.

N/A

b. Proposed measures to reduce or control direct impacts on public services, if any.

N/A

16. Utilities

a. Check utilities currently available at the site:

- [X] **Electricity**
- [ ] **natural gas**
- [X] **Water**
- [X] **refuse service**
- [X] **Telephone**
- [X] **sanitary sewer**
- [X] **septic system**
- [ ] **other:** _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity that might be needed.

None.

C. Signature

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Date: _____

D. Supplement for Nonproject Actions

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

If the proposed application of the alum occurs per contractor specifications, the release of aluminum sulfate and sodium aluminate would not be released at quantities hazardous to humans or aquatic wildlife.

a. Proposed measures to avoid or reduce such increases:

Contractor would have an accidental spill response plan on the site outlining measures to control and contain a spill or leak.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

The lake alum treatment proposal would improve water quality by reducing lake phosphorus levels and potentially toxic algal blooms. No significant impacts on animals or fish are anticipated.

a. Proposed measures to protect or conserve plants, animals, fish, or marine life:

Fish resources would be protected through the use of a buffering agent (sodium aluminate) and hourly monitoring of pH and alkalinity at the treatment site.

3. How would the proposal be likely to deplete energy or natural resources?

N/A

a. Proposed measures to protect or conserve energy and natural resources:

N/A

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection, such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmland?

The alum application would occur at Green Lake, a Seattle City Park.

a. Proposed measures to protect such resources or to avoid or reduce impacts are:

See response to 1 above.

5. How would the proposal be likely to affect land and shoreline use? Would it allow or encourage land or shoreline uses incompatible with existing plans?

Recreational use of the shoreline after alum treatment may increase due to improvements in the water quality and enhanced fishing opportunities.

a. Proposed measures to avoid or reduce shoreline and land use impacts:

None.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

If the proposal results in increases in lake use due to improved water quality, increased demand on public transportation and utilities could result from the increased park usage. Such facilities that may experience an increase include primarily demand on public transportation (bus) that serves the lake and adjacent area. This increase in demand would only occur in the summer.

a. Proposed measures to reduce or respond to such demands:

None.

7. Identify, if possible, how the proposal might conflict with local, state, or federal laws or requirements for the protection of the environment.

No known conflict is known to exist.

SEPA Checklist References

Herrera. 2003a. Green Lake Integrated Phosphorus Management Plan. Prepared for Seattle Parks and Recreation, Seattle, Washington by Herrera Environmental Consultants, Inc., Seattle, Washington.

Herrera. 2003b. Green Lake Alum Treatment Study. Prepared for Seattle Parks and Recreation, Seattle, Washington by Herrera Environmental Consultants, Inc., Seattle, Washington.

KCM. 1995. Green Lake Phase IIC Restoration Project Volume 1 – Project Completion Report, Prepared for Seattle Parks and Recreation, Seattle, Washington by Herrera Environmental Consultants, Inc., Seattle, Washington.

URS. 1983. Green Lake Restoration Diagnostic Feasibility Study. Prepared by Seattle Parks and Recreation, Seattle, Washington, by URS Engineers, Seattle, Washington.

URS. 1990. Green Lake Water Quality Improvement Project. Final Environmental Impact Statement. Prepared for Seattle Parks and Recreation, Seattle, Washington, by URS Engineers, Seattle, Washington. April 1990.

WDFW. 2003. Agency correspondence regarding the presence of endangered, threatened, and candidate species of plants and wildlife in the vicinity of Green Lake, addressed to Lori Guggenmas, Department of Fish and Wildlife. Priority habitats and species, Olympia, Washington. September 11, 2003.